electric West 2007

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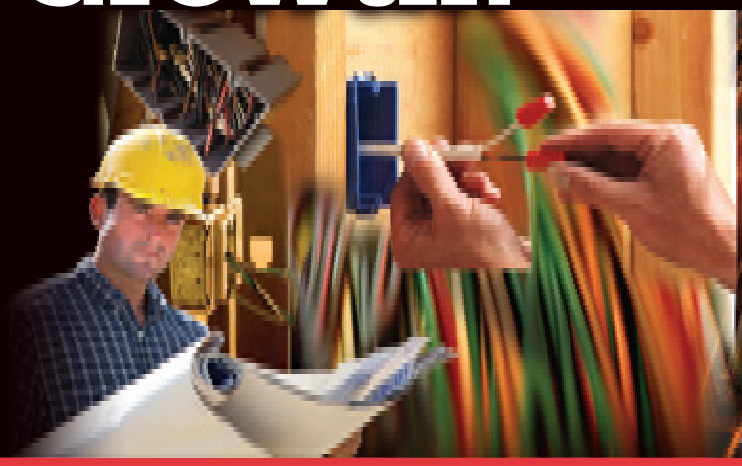
Exposition and Conference
February 21-23, 2007
Long Beach Convention Center
Long Beach, California

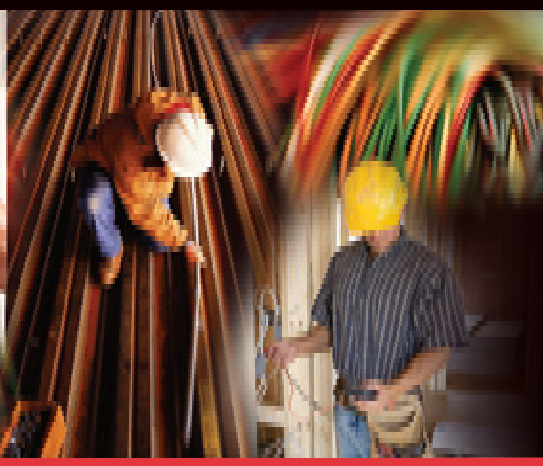
Professional Advancement Courses/NEC® Update: February 20

- **Contractors**
- **Consulting/Specifying Engineers**
- **Plant/Facility Engineers & Managers**
- **Electricians**
- **Company Presidents/Owners/Partners**

In-Depth Information on **CODE CHANGES & STANDARDS!**
(see page 7)

Channel Your Energy into **Knowledge & Growth!**





PLUS:
200+ Exhibits featuring thousands of products
FREE General Session:
Ask the Experts Power Quality panel Page 5
FREE Keynote Address (Page 2):
"EMF & Childhood Leukemia: Current Research"
By Robert Kavet, ScD, EMF-RF Program Manager, EPRI

www.electricshow.com

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Produced by PRISM BUSINESS MEDIA

Dear Electrical Professional:

The electrical field encompasses a broad range of job titles, responsibilities and areas of expertise… and **Electric West**—February 21-23 at the Long Beach Convention Center in Long Beach, CA—is the one event that offers the right information and product mix to meet all of these divergent needs!

Whether you specialize in electrical contracting for residential, industrial, commercial or institutional applications, whether you specify equipment or consult on and review construction plans… whether you maintain electrical systems and power integrity for any type of facility… **Electric West** can help you find the products you need to do a better job.

The exhibits encompass the full spectrum of electrical equipment, products and services, with the world's most innovative suppliers on hand to answer your questions. It's the year's best opportunity to make face-to-face comparisons, price your options and find exactly what you need for your specific applications.

To help you develop new capabilities, **Electric West** also features three dedicated pavilions:

Renewable Energy - offers contractors, engineers and plant/facility managers a chance to see the latest progress in such key areas as solar power, hydropower, biomass, wind and fuel cells.

Home Automation - is one of the fastest growing areas for contractors. Gain new insight on how to integrate network services, security systems, control devices and entertainment equipment. Source products that will enable you to make proposals to the increasing customer base.

Power Quality - Blackouts like last summer's 10-day disaster on the East Coast, an antiquated grid system, cables that go back to the 19th century and the threat of terrorism make it more imperative than ever for plant and facility management personnel to know their options.

Of course, all of these topics and more are covered extensively in the balanced **Electric West** Conference program. The editorial staff of *EC&M* magazine have taken the time to identify the most useful subjects and recruit the most knowledgeable authorities to make presentations. To make it easier to choose what works for you, we've organized the seminars into eight topical categories. See the schedule on page 4/5 and the descriptions on the pages that follow.

No matter if you're in business for yourself or punch a clock for a company, it's not easy to get away. But if you can juggle your responsibilities for just a few days, the results will pay dividends that will make your life easier all year long. Register now for **Electric West**… and we'll see you in February for the most intensive and idea-filled days of the year.

Sincerely,

John DeDad
Senior Director, Editorial and EC&M Development.
EC&M magazine.

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EC&M
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KEYNOTE ADDRESS

Wednesday, February 21, 2007
9:45am – 10:45am
Free to All Attendees

EMF & Childhood Leukemia: Current Research

By Robert Kavet, ScD, EMF-RF Program Manager, EPRI

Decades of research have studied possible health effects of exposure to electric and magnetic fields. While the great majority of studies have shown no links between electromagnetic fields (EMF) and a variety of maladies, several key epidemiological studies have caused expert scientific panels to conclude that there is indeed a statistically significant association between power-frequency magnetic fields and the development of childhood leukemia. Nevertheless, laboratory confirmation and a convincing explanation of the nature of this link have eluded researchers and health theorists for some years. Mr. Kavet will describe how EPRI approached this highly controversial subject by addressing two theories that may finally clarify the issue. One theory involves basic residential grounding as required by the National Electrical Code.

Register online at www.electricshow.com or on page 16

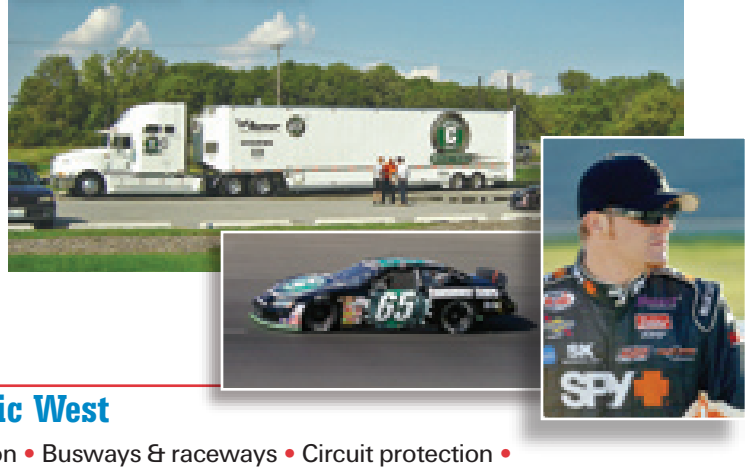
Meet ARCA Driver Justin Marks
and See the Construct Corps #65 Dodge and Hauler at Electric West

If you're a stock car enthusiast, get an up close and personal look at how a great team comes together at **Electric West.** Leading staffing firm **Construct Corps** has joined forces with RAB Racing on the ARCA RE/MAX series and they're bringing out their entourage right on the show floor!

Check out the Construct Corps race car hauler, the fabulous #65 Dodge and see how it all comes together. Meet and take pictures with Construct Corps driver Justin Marks, who has a solid background in the American Le Mans Series, Rolex Sport Car Series, Speed World Challenge GT and Touring Car Championship, NASCAR Featherlite Southwest Series, and Grand Am Cup Series.

Look for Construct Corps #65 Dodge, proudly displaying the **Electric West** decal in ARCA RE/MAX coverage in the 2007 series.

Construction Staffing Done Right



Find All the Products You Need at Electric West

Batteries & battery systems • Building & home automation • Busways & raceways • Circuit protection • Conduit fittings • Construction site equipment • Distribution equipment • Enclosures • Energy management • Fasteners • Fiber optics • Fire & safety alarms • Grounding systems • Lamps, lighting fixtures & controls • Low-voltage systems • Measuring, testing, locating equipment • Meters • Motors & controls • Mounting hardware • Power conditioning equipment • Power sources: generator & stand-by • Premise wiring • Security systems • Signaling systems • Software systems • Switching equipment • Tools: power & hand • TVSS • Transformers • UPS • Voice, data & telecommunications products • Wiring devices…plus much more

Meet the Leading Suppliers in the Electrical Marketplace

Exhibitors as of October 20, 2006

3M Company
Access Hardware Supply
Accuenergy
Advanced Test Equipment Rentals
Alcan Cable
AEE Solar
AEMC Instruments
Allstate Insurance Co.
American Connectors, Inc.
American Express
American Polywater Corp.
American Solenoid
American Technical Publishers, Inc.
Arlington Industries
Arrow Fastener Co. Inc.
AVO Training Institute
Bad Dog Tools
Benner-Nawman, Inc.
Black Rhino Tools
Bosch Power Tools
Bridgeport Fittings
Cal Conduit Products
Carhartt
Carson Industries LLC
Cementex
Certified Insulated Products Corp.
CES America
Channel Vision Technology
Channellock, Inc.
Citel, Inc.
Clifford of Vermont/A Power and Tel Company
Cobasys
ComRent International
Conduit Repair Systems, Inc.
Condux International
ConEst Software Systems
Construct Corps.
Copper Development Assoc.
Current Tools, Inc.
DABMAR
DC Power Systems, Inc.
DENT Instruments
Directional Systems
DuPont Company
EC&M/Electrical Wholesaling
E-Mon
Elco Lighting
Electrical Advertiser
Electrical Contracting Products
Electrical Training Institute
Energy Billing Systems, Inc.
Erico Inc.
Ericson Manufacturing
Erin Rope Corporation
Estimation, Inc.
Extech Instruments
Fantech Inc.
Focus Industries
GE Consumer & Industrial
Glenn E. Thomas Dodge
Global Solar Energy
Grady Research, Inc.
Greenlee A Textron Co.
Gripple
Hampton Tedder Electric
Harger Lightning & Grounding
Heath Zenith
Heary Bros. Lightning Prot. Co. Inc.
Hioki USA Corporation
Ideal Industries Inc.
ILSCO
Intermatic
Jameson, LLC
Jerry's Electric Inc.
Jones and Bartlett Publishers
Kichler Lighting
King Innovation
Klein Tools
Lapp USA
Lenox
L.H. Dottie Company
McCormick Systems Inc.
Megger
Meter - Treater, Inc.
Miller O.E.M. Supplies
Milspec Industries
Mr. Electric
Mr. Sparky Franchising LLC
National Metter Industries, Inc.
necdigest
NSI Industries, LLC
Airzone Fans
Outsource Telecom
Panasonic Home & Environment Company
Paragon Lighting, Inc.
Pass & Seymour
Pencell Plastics
Penn-Union Corp.
Perfect 10 Wire & Cable Mfg. Co.
Philatron International
Post Glover Lifelink
Powersight/Z Meters
Protect Connect
Quickpen International
Quick Wedge
Ramset
Ray Tools
Rechargeable Battery Recycling Corporation
Rectorseal
Renewable Technologies, Inc.
Rough-in Ready
Royal Pacific Ltd.
Salisbury & Company
Santronics, Inc.
Schonstedt Inst. Co.
Seatek Company, Inc.
Secura-Lets
Snake Tray
SolarWorld California
Solon Mfg. Co.
Southwire Company
S-P Products, Inc.
Steel Grip Inc.
Strip Technology, Inc.
Sunwize Technologies
Surge Suppression Inc.
T & R Electric Supply Co Inc.
TakeOff16, Inc.
Technology Research Corp.
Topaz Lighting West Corp.
Trade Service
Triplett Corporation
Trojan, Inc.
Tyco Thermal Controls
Underground Devices, Inc.
UL
UNIQUE Fire Stop
Universal Enterprises, Inc.
Universal Lighting Technologies, Inc.
U.S. Energy
Vela Industries Corp.
Vista Professional Lighting
W.A.C. Lighting
WAGO Corporation
Williams Scotsman
Wing Enterprises
WireGuard

Call Marc Ross 203-358-3711

For more information, call 800-927-5007 or 508-743-0105

Schedule At-A-Glance
Professional Advancement Courses & NEC® Update

Tuesday, February 20, 2007 – Professional Advancement Courses & NEC® Update

9:00am - 1:00pm

PAC1 (PQ)
Practical, Inexpensive Ways to Monitor Power Quality and Power Quantity
Alexander McEachern, Power Standards Labs

2:00pm - 6:00pm

PAC6 (PQ) (IA)
Powering Multiple Computer Loads in the Most Energy-Efficient Manner
Dr. Michael Z. Lowenstein, Harmonics Limited

9:00am - 5:00pm

PAC2 (RA)
1- and 2- Family Dwelling Electrical Systems
CEU Course
L. Keith Lofland, IAEI

PAC3 (LI) (RA)
Lighting Design & Technology 2007 – *for Contractors & Engineers*
James Benya, Benya Lighting

PAC4 (PQ)
Transient Voltage Surge Suppression
CEU Course
Thomas W. Butcher, Surge Suppression, Inc.

PAC5 (PQ)
Troubleshooting & Solving Power Quality Problems
David R. Mueller, Electrotek Concepts, Inc.

NEC1 (CC)
Understanding & Applying the 2005 NEC®
CEU Course
Mike Holt, Mike Holt Enterprises

Wednesday, February 21, 2007 – Seminars

8:30am - 9:30am

101 (CC) (IA) (SF)
Lightning History, Myths, and Modern Lightning Protection Systems
Curtis R. Stidham, Harger Lightning & Grounding

201 (CC) (SF)
OSHA's Electrical Safety Requirements
Dennis K. Neitzel, AVO Training Institute, Inc.

301 (BP)
Electrical Estimating: Now and the Future
Stanley Shook, TakeOff16, Inc.

401 (IA)
Tips & Techniques for Choosing VDV Tools & Testers
Dr. Ted James, Pasadena City College

501 (CC)
2005 NEC® Mandated Selective Coordinated Design Issues
Charles J. Nochumson, Eaton Corporation

601 (PQ) (IA)
Power Infrastructure for Information Technology Space
Steven McCluer, American Power Conversion Corporation

9:45am - 10:45am

Keynote Address – Free to All Attendees
EMF & Childhood Leukemia: Current Research – *Robert Kavet, ScD, EMF-RF Program Manager, EPRI*

11:00am - 5:00pm

Exhibit Hall Open – Lunch Available on Show Floor

1:00pm - 2:00pm

102 (BP) (IA) (RA)
PEARL - Professional Electrical Apparatus Recyclers League *When Your Supply House Doesn't Have What You Need!*
David Rosenfield, ROMAC and Power Controls, Inc.

202
Development in Power Transformer Insulation Management
Dr. Bruce Pahlavanpour, Nynas Naphthenics Ltd., UK

2:30pm - 3:30pm

103 (BP) (IA) (HA)
Basics of California Solar Initiative (CSI), Building a Sustainable Future with Renewable Technologies
Darryl Conklin, Renewable Technologies, Inc.

203 (PQ) (IA)
MV Power Cables: Basics, Testing, and Ground Fault Coordination
John DeDad, EC&M Magazine

4:00pm - 5:00pm

104 (BP)
How Project Managers Can Increase Cash Flow
David Brown, D. Brown Management

204 (RA)
Premium Bathroom and Home Ventilation
David Miller, Fantech

1:00pm - 5:00pm

W1 (HA) (RA)
Introduction to Distributed Audio, Home Theater and Control Systems
Steven Borich, Imagine Audio

W2 (CC) (SF)
Electrical Safety and the Electrical Worker *Awareness, Understanding, Application*
Richard B. Guest, East Bay Regional Park District

W3 (LI) (IA)
Energy-Saving Lighting Alternatives for Commercial and Industrial Applications
Les Webster, Paragon Lighting, Inc.

NEC2 (CC)
Grounding & Bonding
CEU Course
Mike Holt, Mike Holt Enterprises

Exhibit Hall Hours

Wednesday, February 21	11:00am - 5:00pm
Thursday, February 22	11:00am - 6:00pm
Friday, February 23	10:00am - 1:00pm

Conference Program subject to change.
Visit **www.electricshow.com** for updated information.

(BP) Business Practices (CC) Code Compliance (HA) Home Automation (IA) Industrial Applications (LI) Lighting (PQ) Power Quality (RA) Residential Applications (SF) Safety

Register online at www.electricshow.com or on page 16

Thursday, February 22, 2007 – Seminars

8:30am - 9:30am

105 IA
Energy-Efficient Motors and Transformers
David Brender, Copper Development Association

205 SF CC
Industrial Electrical Safety Inspections
Dennis K. Neitzel, AVO Training Institute, Inc.206

305 PQ
Power Quality Monitoring – Seeing What's On The Wires
Ross Ingall, Dranetz-BMI

405 PQ
Bridge Time Batteries: A Scalable Alternative to Flywheels
Dennis DeCoster, Mission Critical West, Inc.

505 BP
Smart Ways to Use the Internet to Boost Sales
Alan Wulff, Electric Pilot

605 BP
Change Orders: Profit or Loss?
Richard E. Manrod, McCormack Systems, Inc.

9:45am - 10:45am
Ask the Experts Panel – Free to All Attendees
Power Quality *Host: John DeDad*

11:00am - 6:00pm
Exhibit Hall Open – Lunch Available on Show Floor

1:00pm - 2:00pm

106 PQ
Using Line Impedance to Proactively Prevent Power Quality Problems
Robert Thomas, Rx Monitoring Services, Inc.

206 LI
Lighting Technology 2007
James Benya, Benya Lighting

306 BP
Improving Profits Through Good Project Management
John DeDad, EC&M Magazine

406 BP
Reduce or Eliminate Hidden Variable Labor Costs and Increase Your Bottom Line
Steve Purves, ProtectConnect

506 CC IA PQ SF
Ground Testing: Instrumentation, Technique, and Error Avoidance
Jeffrey R. Jowett, MEGGER

2:30pm - 3:30pm

107 BP HA RA
Emerging Technologies
William West, Control4

2:30pm - 4:00pm

207 CC
(90 minute session)
How to Recognize Electrical Hazards and Code Violations
Joe Tedesco, Tedesco Electrical Code Consultants, Inc.

307 IA RA
(90 minute session)
Aluminum Building Wire Installation
Christel Hunter, Alcan Cable

407 BP RA
(90 minute session)
Accessability for Electrical Contractors: It's Good Business, Not Just the Law
Allan B. Fraser, National Fire Protection Association

507 BP
(90 minute session)
Understanding Labor Units
How to Increase Workforce and Project Management Productivity with Smart Estimating
George Hague, ConEst Software Systems

4:00pm - 5:00pm

108 CC SF
Leading Edge Solutions in Order to Comply With NFPA70E 2004 Electrical Safety in the Workplace
Ben Bird, Certified Insulated Products Corporation

Friday, February 23, 2007 – Workshops

8:30am - 12:00pm

W4 CC SF
Understanding NFPA 70E – 2004
Dennis Neitzel, AVO Training Institute, Inc.

W5 BP
Fundamentals of Electrical Estimating
Michael Hughes, Daniel Melroy, Bergelectric Corporation, American Society of Professional Estimators

W6 CC
IAEI's Analysis of Changes – 2008 National Electrical Code (NEC)
CEU Course
Michael Johnston, International Association of Electrical Inspectors

W7 SF
Electrical Safety Training OSHA/NFPA 70E
John Luke, Lynn Hamrick, The ESCO Group

W8 HA RA
Advanced Distributed Audio, Home Theater and Control Systems
Steven Borich, Imagine Audio

10:00am - 1:00pm
Exhibit Hall Open

GENERAL SESSION

Thursday, February 22, 2007
9:45am – 10:45am
Free to All Attendees
Ask the Experts – Power Quality Panel
Host: John DeDad, Editorial Director, EC&M Magazine

Here's your chance to get answers to your power quality questions.

Attend this FREE session, pose your question and listen to this group of industry experts as they address pertinent topics and problem areas. Topic coverage will include harmonics, transients, grounding, waveform distortion, waveform signature analysis, power quality installation techniques, lightning protection, etc.

If you would like to submit questions prior to the Panel Session, visit www.electricshow.com and click on the "Ask the Experts" icon.

BP Business Practices CC Code Compliance HA Home Automation IA Industrial Applications LI Lighting PQ Power Quality RA Residential Applications SF Safety

Professional Advancement Courses & NEC® Update

BP - Business Practices
CC - Code Changes and Standards
HA - Home Automation
IA - Industrial Applications
LI - Lighting
PQ - Power Quality
RA - Residential Applications
SF - Safety

Tuesday, February 20, 2007
9:00am – 1:00pm

PAC1 (PQ)
Practical, Inexpensive Ways to Monitor Power Quality and Power Quantity

Alexander McEachern, Power Standards Labs

One of the leading experts in the field shares decades of hands-on experience solving power problems using common sense combined with cheap measurements.

Real-world examples, with pictures, include smelling circuit breaker panels to find loose connections; listening to transformers for harmonics; and using birds to diagnose problems on outdoor bus bars. Even if you have traditional instruments, the lecturer argues that there are often cheaper, simpler, and more effective ways to use their measurements. (The instructor has taught this seminar this year in Boston, St. Louis, Beijing, and Paris, but this is the first time it has been presented in California.)

Tuesday, February 20, 2007
9:00am – 5:00pm

PAC2 (RA)
1- and 2-Family Dwelling Electrical Systems

CEU Course

L. Keith Lofland, International Association of Electrical Inspectors

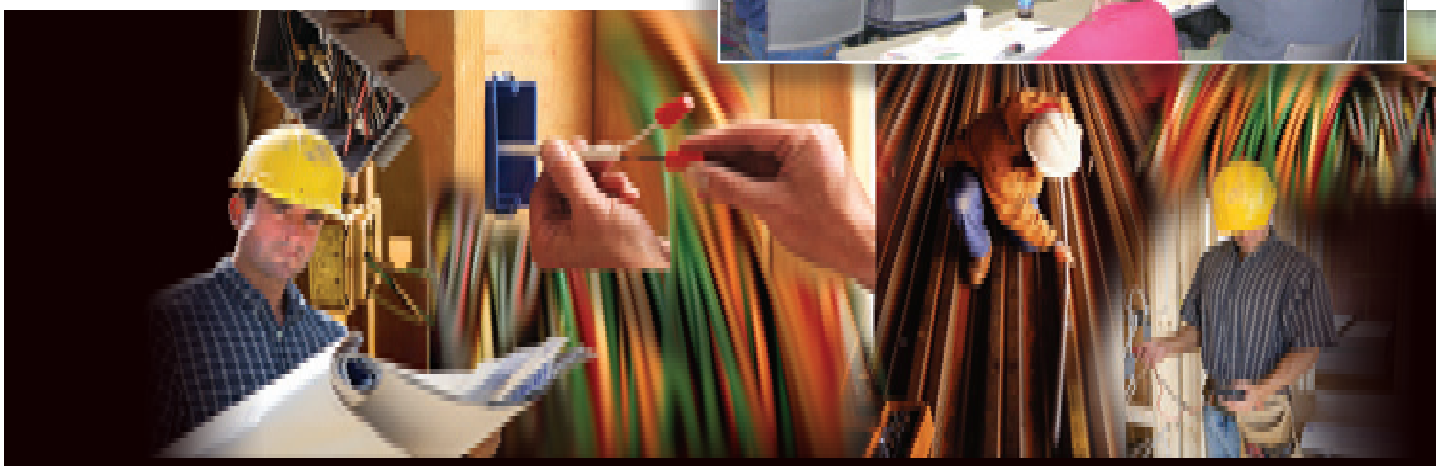
A particularly helpful and valuable session for inspectors, contractors, electricians, and students. Learn to make more accurate, thorough, and safe installations and inspections of one- and two-family dwellings. There are more specific requirements in the NEC for a dwelling that all other type occupancies combined. Based on a comprehensive book of the same name that explains in clear, concise language the installation, design, and inspections of electrical systems in dwellings. Information is derived from the National Electrical Code (NEC), but both NEC and International Residential Code (IRC) requirements are referenced in the textbook.

IAEI is an accredited continuing education provider with the International Association for Continuing Education and Training (IACET). Each attendee can earn valuable CEU's toward renewal of electrical license for national and local license requirements by attending this seminar.

PAC3 (LI) (IA)
Lighting Design & Technology 2007 – *for Contractors & Engineers*

James Benya, Benya Lighting Design

A workshop that helps engineers, contractors, distributors and reps provide contemporary, high quality and energy-efficient lighting systems for projects of all types, from basic industrial and office lighting to sophisticated retail, corporate and hospitality industry projects. Learn quickly from America's top lighting design educator about state-of-the-art products, layered lighting design, and many other practical concepts that give great results on projects at all cost levels. Subjects include lamp and ballast technology, including the latest "Super T8" lamps and ballasts, T5, compact fluorescent and HID. High performance, high quality lighting – even as low equipment cost. Exacting details about control systems and making them work right. How to do computer lighting calculations – anyone can! Covers all codes that affect lighting and how to meet them. Examines the latest and hottest trends, including T5HO hibay, ceramic metal halide, and low voltage monorail tracks.



Register online at www.electricshow.com or on page 16

PAC4 (PQ)

Transient Voltage Surge Suppression

CEU Course

Thomas W. Butcher, Surge Suppression, Inc.

A professionally recognized course that is fully accredited for six classroom hours of Continuing Education Units through the Institute of Electrical and Electronic Engineers (IEEE). It consists of seven sections:

1. The Transient Environment
2. Effects On Your Equipment
3. TVSS Design
4. Product Specifications
5. System Survey & Design
6. Application Results
7. Comparison TVSS Testing

At completion, attendees should be able to recognize the potential sources of transient voltage surge activity from external and internal activity. They should be able to recognize the different types of Transient Voltage Surge Suppression (TVSS) devices and their uses, identify proper locations within the facility electrical distribution system for the proper application of TVSS devices and properly select for type and size and properly install those devices.

PAC5 (PQ)

Troubleshooting & Solving Power Quality Problems

David R. Mueller, Electrotek Concepts, Inc.

Power quality has become an increasingly important topic for electric power customers. This is particularly true for industrial and commercial customers, as manufacturing and control processes more heavily rely on equipment sensitive to power system interruptions and disturbances. Increased automation of manufacturing and other industrial processes and expanded use of energy-efficient power electronic technologies and microprocessor-controls are forcing customers to pay more attention to power quality.

Tuesday, February 20, 2007
2:00pm – 6:00pm

PAC6 (PQ) (IA)

Powering Multiple Computer Loads in the Most Energy-Efficient Manner

Dr. Michael Z Lowenstein, Harmonics Limited

There are three types of transformers commonly used to power multiple computer installations: standard transformers; k-rated transformers; and zigzag transformers. Special transformers are used to counter the effects of harmonic currents, particularly the 3rd harmonic, on the transformer and electrical distribution system. A 15 kVA demonstration system has been developed that enables the comparison of harmonic currents and energy consumption of fixed multiple-computer loads when powered by each type of transformer.

In addition, the application of a harmonic suppression system to each type of transformer can be studied to observe the effect of removing harmonic currents from the distribution system.

This presentation uses a high-speed internet connection directly to the demonstration center. Real-time harmonic current and energy consumption comparisons are displayed with video projectors. Two-way communications permit the audience to suggest various loading and connection scenarios that can be instantly explored. The opportunity to observe the effect on electrical systems of harmonic currents is unique.

Tuesday, February 20, 2007
9:00am – 5:00pm

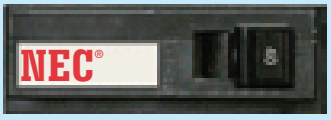
NEC1 (CC)

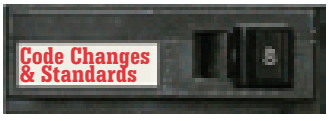
Understanding & Applying the 2005 NEC®

CEU Course

Mike Holt,
Mike Holt Enterprises

An in-depth examination of some of the most important rules contained in the 2005 NEC. This program will help you to understand the concepts necessary to design, install, inspect, measure and troubleshoot electrical systems. In addition, it 's intended to help clear up confusing and seemingly conflicting or controversial NEC rules. Also tips on proper electrical installations, advice or cautions to possible conflicts or confusing Code rules and warnings of dangers related to improper electrical installations will be provided. This dynamic and exciting seminar with Mike will translate the very technical language of the NEC into everyday language that you will be able to apply.





Definitive Coverage on the Rules and Procedures You Need to Know

Every state (and in some cases, individual municipalities) has its own criteria for which year's NEC is in effect. California adopted the 2002 NEC in 2005 and it is now in effect. Recently, the California Building Standards Commission has recommended the adoption of the 2005 NEC. Colorado, Alaska, Idaho, Montana, New Mexico, Oklahoma, Oregon, Texas, Utah, Washington and Wyoming have all adopted 2005 NEC. Michigan and New Jersey are states where adoption of NEC 2005 is now taking effect.

Mike Holt, one of the industry's leading electrical trainers, will be conducting a workshop on "Understanding & Applying NEC 2005" and a second CEU course on Grounding & Bonding at **Electric West**. Of course, there are many additional codes and standards that govern the industry. There are 12 sessions covering Code Changes and Standards being presented, many of which also examine vital safety issues.

Vital Update! Analysis of 2008 NEC® changes (*see page 13*)

For more information on individual state requirements, visit www.mikeholt.com

The Conference

Wednesday, February 21, 2007

8:30am – 9:30am

101 CC IA SF

Lightning History, Myths, and Modern Lightning Protection Systems

Curtis R. Stidham, Harger Lightning & Grounding

The presentation will include an overview of the history and nature of lightning including myths and facts about this natural phenomenon. The Basic Principles of Lightning Protection are discussed including a detailed discussion on lightning protection systems used for commercial and industrial buildings. Relevant codes, standards and practices, as well as the elements of a properly designed grounding system will be reviewed. The recent changes to the NFPA780 Standard will be discussed. Finally, non-conventional technologies such as such as early stream emitters (ESE) and charge transfer systems (CTS) will also be discussed. The method for conducting a Lightning Risk Assessment (per NFPA780) is presented. Applicable lighting protection Codes & Standards are presented.

201 CC SF

OSHA's Electrical Safety Requirements

Dennis K. Neitzel, AVO Training Institute, Inc.

There are three major hazards of electricity; electrical shock, electrical arc-flash, and electrical arc-blast. These electrical hazards in the workplace pose a significant risk of injury or death to any employee who may be in the vicinity of electrical equipment when energized parts are exposed or when a failure occurs. OSHA has provided the industry with several performance-oriented regulations that address the minimum requirements for safe work practices that are necessary to protect employees from these hazards. These regulations include:

- Installation Safety Requirements
- Electrical Safety-Related Work Practices
- Electrical Power Generation, Transmission, and Distribution
- Personal Protective Equipment (PPE)

This paper will address these OSHA regulations, as well as a corresponding consensus standard, published by the National Fire Protection Association (NFPA), NFPA 70E, Standard for Electrical Safety in the Workplace, that reinforces the OSHA requirements. These regulations and standards are intended to protect employees who work on or near exposed energized and deenergized parts of electric equipment by providing the requirements for various hazards analysis and safe work practice procedures.

301 BP

Electrical Estimating: Now and the Future

Stanley Shook, TakeOff16, Inc.

An examination of our current state of being as electrical estimators and where we fit into the current commercial and industrial construction industry; where are we headed? This discussion is designed to open the minds of the many "junior" estimators as to what their current role is and what their future may entail. For "senior" level estimators, it should serve to expand their thinking to deeper levels beyond "the old ways of doing things" without losing touch of the best things learned from our predecessors. Also evaluated will be the current state of estimating tools: computers, software, the internet; CAD recognition software.

The lecturer endeavors to be entertaining, insightful, and often times humorous. But most important, he speaks from reality and experience as "one of us".

401 IA

Tips & Techniques for Choosing VDV Tools & Testers

Dr. Ted James, Pasadena City College

When it comes to VDV (Voice/Data/Video) testing, it is important to choose and use the right tools. This session will examine tools, testers and techniques employed by the installer to verify the cable's performance.

The topics covered will include:

- Verification tools (make sure the wires are connected properly).
- Basic continuity functions (such as wire mapping and toning).
- Time Domain Reflections (TDR) (for determining length to the end of a cable).
- Certification tools (performance test against a set of industrial standards).
- Commercial Industry Standards (TIA - 658B)
- Qualification Tools (test to determine the sort of technology that could run on the installed cable).
- Residential Cable Installations (Industry Standards TIA - 570B)
- Cost (avoid all call backs)

By selecting the right combination of installation tools, test tools and techniques the installer can perform the job faster with greater accuracy and less callbacks. All backed by documentation technologies that the job was performed to recognized industry standards.

501 CC

2005 NEC®-Mandated Selective Coordination Design Issues

Charles J. Nochumson, Eaton Corporation

In the design of Elevator feeders, Emergency Systems, Legally Required Standby Systems, and the essential portion of Healthcare electrical systems, today's engineer faces greater difficulty in meeting the 2005 NEC Selective Coordination requirements. Whether utilizing breakers or fuses, the engineer has to understand the nature of the devices being selected, properly apply them, such that only the protective device nearest to the fault will open to clear an overload/fault condition. Briefly cover the NEC requirements regarding selective coordination. A review of low voltage circuit breaker short-time ratings and how they affect selective coordination will be covered. It will also discuss certain techniques for selecting low-voltage circuit breaker protective devices to provide a selectively coordinated system. A comparison will be made of a system designed with TOTAL selective coordination versus a system designed with PARTIAL selective coordination. Also, the potential arc fault energy with associated higher potential for damage to equipment and reduced safety for personnel between the two systems will be discussed.

Register online at www.electricshow.com or on page 16

601

PQ IA

Power Infrastructure for Information Technology Space

Steven McCluer,
American Power Conversion Corporation

"Data centers" include spaces such as "computer rooms" and "telecommunication rooms"(closets). The dynamics in these spaces are rapidly changing, creating high concentrations of power and heat. A whole new set of challenges arise such as :

- How to distribute power and data cables,
- How to configure equipment to eliminate thermal stress on equipment
- How to configure equipment for maximum efficiency
- How to build IT spaces that eliminate single-points of failure
- How to create spaces that ensure high levels of availability
- How to comply with evolving code requirements
- How to know when "emergency power off" is or is not appropriate

"Information Technology" means far more than moving data. Telephone systems, internet connections, business processes and building management systems today are all bundled together. It is more important than ever to keep equipment operating, yet code safety requirements are not always in line with business needs for reliability and availability. This presentation will address how to reconcile these seemingly contradictory needs.

Wednesday, February 21, 2007

1:00pm – 2:00pm

102

BP IA RA

PEARL – Professional Electrical Apparatus Recyclers League – *When Your Supply House Doesn't Have What You Need*

David Rosenfield, ROMAC and Power Controls, Inc.

Since the beginnings of industrialization, product life cycles have been much longer than product manufacturing cycles. Contractors and users have found themselves in need of components or systems no longer available from the manufacturers or needing it much sooner than the manufacturer can provide. While obsolete and current lead time items can be sourced in the surplus market, there is a danger, a risk, in dealing with used and surplus. The major manufacturers have been very quick to call such risks to our attention. Electrical Codes often include language that specifically precludes the use of "USED" electrical material. Organizations that promote standards on the manufacturing as well as on the distribution sides of product delivery have given scant little mention to the huge volume of used material purchased and reapplied because of the need.

PEARL (Professional Electrical Apparatus Recycler's League) is a new membership organization dedicated to the creation of standards for the reconditioning of used electrical materials or the requalification of aged unused surplus electrical material. Between PEARL technical standards, training and Code of Business Practices, the used and surplus alternative can be the best, quickest, safest way to go.

202

IA

Development in Power Transformer Insulation Management

Dr. Pahlavanpour, Nynas Naphthenics Ltd, UK

Insulating oil in service is subjected to heat, oxygen and electrical discharge, which may lead to chemical breakdown. This severely limits the ability of the oil to carry out its primary functions of insulating and heat transfer as breakdown products reduce electrical properties and cooling efficiency. Oxidation products, such as acids and sludge, are also detrimental to paper insulation. Therefore, monitoring and maintaining oil quality is essential in ensuring the reliable operation of oil-filled electrical equipment. Much greater difficulties exist in deciding frequency of testing and permissible oil degradation levels. Guidelines and a code of practice for in-service insulating oil based on the results of research on insulation aging are described. The paper also seeks to show the best compromise between technical requirements and economic considerations.

Wednesday, February 21, 2007

WORKSHOPS & NEC® UPDATE

1:00pm – 5:00pm

W1

RA HA

Introduction to Distributed Audio, Home Theater & Control Systems

Steven Borich, Imagine Audio

An overview of why and how we should pre-wire for audio, home theater and control systems. Topics to be discussed include; industry changes, new wiring standards and client expectations, basic system design and integration, proper speaker and control systems placement, wire types and uses, distributed audio and surround sound concepts and HDTV.

The standard class fee of $250 will be waived with appropriate pre-registration.

W2

CC SF

Electrical Safety and the Electrical Worker: *Awareness, Understanding, Application*

Richard B. Guest, East Bay Regional Park District

The electrical industry is no stranger to codes. The electrical worker must adhere to a set of codes and standards for installing, servicing and maintaining equipment / materials while adhering to another group of codes and standards for the method in which they install, service and maintain the equipment.

This can be an overwhelming task and often times something is compromised.

For the electrician, electrical safety typically is not the governing factor in the drive to complete a task. More emphasis is placed on fixing the problem or passing an electrical inspection than on doing the task safely.

Electrical safety codes come from Cal OSHA (Title 8), Fed OSHA (29CFR), NFPA (70E), IEEE, ANSI, NESC and several other organizations.

To make electrical safety codes a vital part of the electrical workers common practice, the information needs to be transposed into a working model where practical application and fresh insight bring about a change in conditional response to a common task in the workplace.

Rather than look at the electrical safety codes, hand out copies of the codes and tell the worker to know them and follow them, this program looks at the working

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Wednesday, Feb. 21, 1:00pm – 5:00pm (continued)

component of the electrical safety codes and breaks down into groups the codes that apply based on industry. We identify the major components of electrical hazards; we look at the reasons we do what we do and identify why and how we respond in different situations.

Video of electrical faults in motion are used to identify the impact of everything in the path of the fault. Photos and footage of injuries as a result of an electrical accident are included to emphasize the seriousness of developing a renewed commitment to safety.

Electrical safety equipment and tools are part of a lab time for participants to handle and ask questions regarding use and limitations.

Just as the medical industry has many different types of doctors, so it is with the electrical industry and electricians. Rather than neglecting the safety because it's too complicated to apply, or over emphasizing a specific rule, we break it down into what applies and what doesn't based on the type of task and environment.

"Knowing everything is unrealistic, knowing what applies and how to apply it is vital."

W3

LI IA

Energy-Saving Lighting Alternatives for Commercial and Industrial Applications

Les Webster, Paragon Lighting, Inc.

An interactive discussion on new developments in commercial and industrial lighting. Included will be HID, fluorescent, and LED developments, as well as government and utility company incentives designed to encourage energy saving lighting projects.

NEC2

CC

Grounding & Bonding

CEU Course

Mike Holt, Mike Holt Enterprises

Grounding and bonding of electrical systems, sensitive electronic and communications equipment is the most important and least understood activity in the electrical, data processing and communications industry. Explanation of the main points will be presented in and informal and relaxing style using PowerPoint 4-color graphics and examples that apply to today's electrical installations. Those attending this high energy program will learn the electrical fundamentals necessary to understand the grounding and bonding rules contained in the 2005 National Electrical Code for systems that operate at 120/240, 208Y/1120, or 480Y/277.

Wednesday, February 21, 2007

2:30pm – 3:30pm

103

BP IA HA

Basics of California Solar Initiative (CSI), Building a Sustainable Future with Renewable Technologies

Darryl Conklin, Renewable Technologies, Inc.

Find out about the New Solar Homes Partnership, which provides incentives and support activities for installing eligible solar photovoltaic (PV) systems.

Beginning on January 1, 2007 the CSI program will pay performance-based incentives (PBI) for solar projects equal to or greater than 100 kilowatts (kW^3).

Listen to the latest advancements in Distributed Generation and Solar Technologies with an overview of the California Solar Initiative.

203

PQ IA

MV Power Cables: Basics, Testing, and Ground Fault Coordination

John DeDad, Electrical & Energy Group Magazines

A medium-voltage (MV) power cable is a complex and sophisticated product requiring careful testing and handling. Find out how the current-carrying conductor, laminated dielectric, MV insulation, semiconductive shield, metallic shield, and outer jacket work together to control electrical stress and provide mechanical protection. Also, learn about hi-potential and dissipation factor testing, how to size MV cable shielding to carry available ground-fault current, and how to coordinate the shielding sizing of various cable feeders in a power distribution system. This session is a must for electrical engineers, electrical contractors, and plant/facility electrical maintenance personnel.

Wednesday, February 21, 2007

4:00pm – 5:00pm

104

BP

How Project Managers Can Increase Cash Flow

David Brown, D. Brown Management

Inadequate cash flow kills more construction businesses than poor profitability.

Learn techniques from startup through project close-out that can be used to improve cash flow – and profitability. These ideas are all based on real-world experience and projects including how to use ForeFront to streamline and manage the processes. Geared toward anyone directly involved in the management of projects, PM's or financial managers, this session includes worksheets and ideas that can be put to use immediately in your business.

204

RA

Premium Bathroom and Home Ventilation

David Miller, Fantech

Topics to be discussed:

- Styles of ventilation
- Need for a premium vent strategy
- Protecting home and occupants from moisture, etc.
- IAQ "Indoor Air Quality"
- Quality bathroom ventilation
- Increased margins and customer satisfaction

There are major air quality issues facing residential construction and a need for premium and effective bath ventilation. This session will cover all aspects and solutions.

Thursday, February 22, 2007

8:30am – 9:30am

105

IA

Energy-Efficient Motors and Transformers

David Brender, Copper Development Association

A discussion of how more efficient motors and transformers are made, what makes them different, and how to perform the calculations necessary to justify installation in place of standard efficiency products. Efficiency is a bottom-line issue. Several case histories will illustrate the increased reliability and fast paybacks that can be achieved.

205 SF CC

Industrial Electrical Safety Inspections

Dennis K. Neitzel, AVO Training Institute, Inc.

The Occupational Safety and Health Administration (OSHA) has concluded that effective management of worker safety and health protection is a decisive factor in reducing the extent and the severity of work-related injuries and illnesses. Effective management addresses all work-related hazards, including potential hazards which could result from a change in worksite conditions or practices. It addresses hazards whether or not they are regulated by government standards.

Electrical safety inspections must be conducted in order to verify full compliance with OSHA electrical safety regulations, as well as industry consensus standards such as NFPA 70, National Electrical Code; NFPA 70E, Standard for Electrical Safety in the Workplace; and NFPA 70B, Recommended Practice for Electrical Equipment Maintenance. Compliance with these regulations and standards will help to ensure that employees are maintaining electrical systems and equipment in proper and safe working condition, as well as each employee's utilization of safe work practices and appropriate electrical protective equipment. Inspections also assist supervisors and managers in meeting electrical safety goals set by the company for regulatory compliance.

305 PQ

Power Quality Monitoring – Seeing What's On The Wires

Ross Ingall, Dranetz-BMI

Has your facility ever had mysterious problems with equipment? Was the source the electrical supply, wiring, equipment problems or even never found? The electrical supply within your facility can be the lifeline of your business but is often overlooked and not monitored. Like the squeaking brakes in your car, there are often leading indicators to looming electrical systems failures. Among many other benefits, power quality instruments can see these leading indicators to help prevent costly failures.

This interactive session will use real case studies to demonstrate these concepts along with introducing the basics of power quality and some new technologies.

405 PQ

Bridge Time Batteries: A Scalable Alternative to Flywheels

Dennis DeCoster, Mission Critical West, Inc.

Flywheels have made major inroads in critical facilities infrastructure power protection since the turn of the century, with sales approaching some one Billion dollars. Virtually all of these flywheels have been deployed in "15 second" UPS and CPS Bridge Time applications covering the time it takes for the diesel generation system to start and accept load. While generally reliable, flywheels are expensive, not very scaleable, and have many complex moving parts to maintain. Now there is a new Bridge Time alternative – Nickel Metal Hydride (NiMH) batteries. Unlike lead acid batteries, these cells do not stop at 2 or 3 minutes minimum reserve, but can go all the way down to 15 seconds. This allows an extremely compact, yet highly reliable and scaleable way to transition critical loads, such as data center loads, from a failed utility to backup generators without interruption. Examines reliability and availability of all three DC storage types and also discuss safety issues where NiMH is far safer to work with than either lead acid batteries or flywheels since there is no lead, acid, high speed heavy masses starting up, or excessive hydrogen. Looks at scaleability, perhaps one of the most important parameters. If a site later requires 30 or 60 seconds (say for paralleling), or even 15 minutes, additional strings can be added at any time for capacity or redundancy. Both up front costs, as well as recurring (Life Cycle) costs, which are significantly lower than with flywheels, will be reviewed.

505 BP

Smart Ways to Use the Internet to Boost Sales

Alan Wulff, Electric Pilot

A website is a key component to your business, plan ahead.

What are the reasons people are coming to your website?

What new features will be added to your website in the next 2 years?

Learn new ways to increase internet traffic to your website

- Optimize a website positioning within all Search Engines
- Marketing a website to prospective customers
- Invest in making a website interactive for visitors

Learn ways to capture visitor information for future marketing

Learn ways to make your website a selling machine

This presentation offers clear take away techniques to boost sales!

605 BP

Change Orders: Profit of Loss?

Richard E. Manrod, McCormack Systems, Inc.

Change Order costs are higher than the original estimate. Review various ways to recover your Change Order costs. Change Order timing is usually important, so tracking and completing Change Orders in a timely fashion is important. Learn the advantages to tracking Change Orders on a computer.

Thursday, February 22, 2007

1:00pm – 2:00pm

106 PQ

Using Line Impedance to Proactively Prevent Power Quality Problems

Robert Thomas, Rx Monitoring Services, Inc.

Line impedance has become the lost parameter of power quality. What most people think of when they hear impedance is what they have to do to match the speakers in a home surround sound system. Lost is the understanding that it defines the ability of a source or feeder to deliver power to a load.

Learn how it can be used to quantitatively define a panel or feeder's ability to delivered pulsed power to a modern electronic load. Understand the meaning behind the line impedance numbers and what affects the feeders ability to deliver power (both voltage and current) to "power hungry" electronic loads. Factories, print shops and hospitals alike can all can use line impedance numbers to quickly and accurately define if you have enough available power at your panel. Also learn how to convert line impedance numbers across both 208V feeders and 480V feeders and understand how power conditioners and UPS affect the source impedance.

206 LI

Lighting Technology 2007

James Benya, Benya Lighting Design

A 60-minute summary of the key points of the "Lighting for Contractors and Engineers" Professional Advancement Course.

306 BP

Improving Profits Through Good Project Management

John DeDad, Electrical & Energy Group Magazines

The effect of good project management on the financial outcome of an electrical construction project cannot be overestimated. Even before actual construction begins, good project management techniques, actions, and methods can reduce the effects of future problems. Learn about job processing activities such as paperwork preparation, engineering design, material and tool scheduling, and estimation evaluation. Also, find out how field installation drawings can save labor costs and how to prepare a cost breakdown to generate positive cash flow. This session is a must for electrical foremen, supervisors, superintendents, estimators, and project managers.

406 BP

Reduce or Eliminate Hidden Variable Labor Costs and Increase Your Bottom Line

Steven Purves, ProtectConnect

Many hidden variable labor costs lurk deep below the surface – are you keeping track of these expenditures? For instance, have you thought about the hours and days it takes to go through plans just to identify the materials needed for a project? What about the ordering process? Do you have to order several pieces and parts from several different vendors? How many trucks are coming into your facility? Who receives the products? Who verifies that you got what you ordered and that it was delivered on time? Do you store these parts and pieces or do anything to them before they are moved to the job site? When you get your pieces to the job site, how much time does it take to figure out where the pieces go? And what if there are mistakes? How many times have you had to go back to a project and open walls because of a mistake? Have you quantified how much your mistakes cost?

It's estimated that as much as 30 percent of the labor cost in a project is due to wasted motion. There are solutions to fix these variables and control labor costs. In a market that is becoming more and more competitive, it's time to move that 30 percent to your bottom line!

506 CC IA PQ SF

Ground Testing: Instrumentation, Technique, and Error Avoidance

Jeffrey R. Jowett, MEGGER

Present fundamentals of ground testing, including unique nature of testing and instrumentation required. Explores how basic theory supports correct procedure, and how common errors are made and avoided. Covers different types of instrumentation; where and why they are applied and misapplied. How standards agencies describe and support testing; update of latest IEEE revision.

Descriptions of various test procedures; why they must be followed and resultant problems and failures if not followed. How different test methods can be applied to different goals and problems: lack of sufficient space to work, timesaving methods, rigorous methods that will stand up to third party scrutiny. Perils of ineffective procedures and how to avoid. Soil resistivity testing; how it's performed, its uses in system design and other uses. Evaluation of test results; basis for acceptance values. Clamp-on ground testers: operation, effective use, avoidance of misapplications. Unseen influence of coupling resistance and how to deal with it.

Thursday, February 22, 2007

2:30pm – 3:30pm

107 BP HA RA

Emerging Technologies

William West, Control4

Skyrocketing energy costs, increased security needs, and a growing desire to make one's house into a comfortable castle (led by aging baby boomers) has led to strong demands for improvements in home technology. These emerging technologies require rethinking the nature of wiring and electrical connections, as increased power loads and complex wiring schematics become more common. The challenge of bringing emerging technologies to millions of older homes will necessitate creative applications of both old and new wiring solutions.

In this paper, a home automation leader, discusses how these ongoing revolutions in the home will benefit electrical installers and allow contractors of all types to expand their offerings and grow their businesses. These new technologies can improve consumer experiences throughout the home. Innovative lighting schemes, automated power and HVAC management, and security applications can all be integrated into a home at very little cost but with tremendous upside for both the installer and end-user.

Additionally, with advances in wireless networking, VoIP phone systems, home security, and more, electrical systems must be set up in a way that minimizes cost and interference while maximizing simplicity and efficiency. Explore how to best prepare for the coming opportunities in the home automation market.

2:30pm – 4:00pm

207 (90 minute session) CC

How to Recognize Electrical Hazards and Code Violations

Joseph Tedesco,
Tedesco Electrical Code Consultants, Inc.

Summary of the many articles written by the presenter for CodeWatch and EC&M to include links and samples of the worst of the worst.

Topics covered:

- Recognize Hazards
- Recognize Code Violations
- Specific 2005 NEC references

307 (90 minute session) IA RA

Aluminum Building Wire Installation

Christel Hunter, Alcan Cable

Aluminum building wire installation is a subject of concern for many installers, engineers, inspectors and owners. How is aluminum alloy wire different than copper? Is it more difficult to install or maintain? Why is aluminum building wire one-third the price of copper building wire? What are the recommended termination methods? Does it need frequent maintenance? What does the NEC require for aluminum conductors? How should aluminum alloy wire be specified? What should the contractor look for when purchasing the wire? What should the inspector look for when inspecting aluminum alloy conductor installations? Where has it been successfully installed in the past? This session will answer all these questions, briefly cover the history of aluminum building wire in the United States, and give specific recommendations regarding conductor sizing, conduit sizing, pulling tension, supporting, terminating and maintenance recommendations.

Register online at www.electricshow.com or on page 16

407 (90 minute session) BP RA

Accessibility for Electrical Contractors: It's Good Business, Not Just the Law

Allan B. Fraser, National Fire Protection Association

Did you know that electricians play a huge role in making buildings and facilities accessible? According to national statistics, more than 50 million Americans have one or more disabilities, and that number is growing every day. By understanding the role electrical components and electricians play in providing accessible buildings for everyone under the ADA and A117.1, you can provide a better and more marketable service to ALL your customers at little on no additional cost to you.

507 (90 minute session) BP

Understanding Labor Units *How to Increase Workforce and Project Management Productivity with Smart Estimating*

George Hague, ConEst Software Systems

Understanding Labor Units addresses the need for smart estimating and how decisions made during the bidding process can optimize workforce productivity and project management by understanding how labor units directly affect the on-time and on-budget outcome of every job.

Labor units impact every installation. With a full understanding of how to apply the right labor units to the estimate, contractors can achieve maximum productivity and increased profits on all their projects.

Thursday, February 22, 2007

4:00pm – 5:00pm

108 CC SF

Leading-Edge Solutions in Order to Comply with NFPA70E 2004 Electrical Safety in the Workplace

Ben Bird, Certified Insulated Products Corporation

Products to be shown at subject session

- New higher dexterity 500 volt insulating electrical gloves – G B Industries
- PVC insulating material to be used instead of the rubber blankets - Safety-line
- Composite screwdrivers & nut drivers – slimmer, lighter, more durable than coated over versions – Electro/Safe
- New knit fabric by Westex converted into Arc Flash HCR 2 Tee shirts, parkas, lab coats, coveralls, and hoods in lighter and much cooler to wear – O!tex
- New knit fabric by Westex converted into Arc Flash HCR 3 & 4 bib overalls, jackets, and hoods in lighter and much cooler to wear.- O!tex
- New cleaners for rubber gloves, grounding cables, etc.- Polywater
- Complete line of 1000 volt insulated hand tools, far more complete than the short line offered by Klein, Ideal, and Stanley Will include torque wrenches, ratchets, geared wrenches, T & Hex L wrenches, etc.- Certified Insulated Products
- 70% Clear 10 cal/cm2 HCR 2 Arc Flash face shields - Paulson

Friday, February 23, 2007

8:30am – 12:00pm

WORKSHOPS

W4 CC SF

Understanding NFPA 70E - 2004

Dennis Neitzel, AVO Training Institute, Inc.

Gain a better understanding of the requirements of NFPA 70E-2004 and how they apply in the workplace. This workshop will focus on the entire NFPA 70E-2004 standards with additional information on the hazards of electrical shock, arc-flash, and arc-blast along with the personal protective equipment (PPE) requirements for these hazards. The requirements for electrical safety-related work practices which include the "Flash and Shock Hazard Analysis" will also be addressed. A must for anyone who works on or near exposed energized and de-energized circuits or parts of electric equipment.

W5 BP

Fundamentals of Electrical Estimating

Michael Hughes, Bergelectric Corporation

Provides a fundamental overview of electrical estimating. You will be exposed to various electrical systems, their components and relative costs. Learn basic take-off methods and costing procedures to allow you to assemble a reasonable cost estimate for an electrical scope of work. Additional topics will include the format of an estimate, the basics of budgeting, and an understanding of how to respond to today's varying delivery methods.

The American Society of Professional Estimators is sponsoring this comprehensive look at Electrical Estimating.

W6 CC

IAEI's Analysis of Changes – 2008 National Electrical Code (NEC®)

CEU Course

Michael Johnston, International Association of Electrical Inspectors

This extensive and popular program analyzes the major changes to the 2008 NEC. Attendees will be among the first people to obtain this recently developed information on the upcoming edition of the NEC. This seminar won't be made available to the general public until late 2007. Members of the nineteen NEC Code-making panels contribute to the development of this seminar and the upcoming authoritative text, which will cover approximately 400 of the most significant changes and includes interpretations by the group that enforces the NEC. This seminar will clearly identify and explain the changes and their impact.

IAEI is an accredited continuing education provider with the International Association for Continuing Education and Training (IACET). Each attendee can earn valuable CEU's toward renewal of electrical license for national and local license requirements by attending this seminar.

W7 SF

Electrical Safety Training

John Luke, Lynn Hamrick, The ESCO Group

Familiarize yourself with the specific guidance provided in NFPA70E-2004 associated with mitigating the consequences of electrical hazards through the use of hazard/risk evaluation and the application of personal protective equipment (PPE) and clothing. Each attendee will receive a companion handout associated with the training presentation. This handout will include applicable information and/or excerpts provided in NFPA70E.

W8 HA RA

Advanced Distributed Audio, Home Theater and Control Systems

Steven Borich, Imagine Audio

An in-depth look at industry changes, new wiring standards and raised client expectations plus a look at how they relate to audio system design and integration, proper speaker and control placement, wire types and uses, building a "backbone", distributed audio and surround sound concepts and home theater design. Students will be expected to participate in class discussions.

Featured Exhibitors at electric West 2007

We are proud to have these industry leaders among the 200+ exhibitors displaying their products and equipment at **Electric West**.

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www.aemc.com

Advanced Test Equipment
Booth 242
www.atecorp.com

Alcan Cable
Booth 801
www.cable.alcan.com

AVO Training Institute
Booth 338
www.avotraining.com

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Special Display in 800 aisle
www.constructcorp.com

Directional Systems
Booth 222
www.directionalsystems.com

DuPont Company
Booth 540
www.PersonalProtection.dupont.com

Electrical Training Institute
Booth 721
www.LAETT.com

E-Mon
Metering Products & Systems
E-MON
Booth 320
www.emon.com

Energy Billing Systems, Inc.
Booth 812
www.energybillingsystems.com

Gripple
Booth 822
www.gripple.com

Harger Lighting & Grounding
Booth 433
www.harger.com

King Innovation
Booth 446
www.kinginnovation.com

Lapp USA
Booth 546
www.lappusa.com

Lenox
Booth 136
www.lenoxsaw.com

L.H. Dottie Company
Booth 722
www.lhdottie.com

Meter-Treater, Inc.
Booth 621
www.metertreater.com

Mr. Electric
Booth 337
www.mrelectric.com

Mr. Sparky Franchising LLC
Booth 808
www.clockworkhomeservices.com

PowerSight/Z Meters
Booth 616
www.zmeters.com
www.powersight.com

Quickpen International
Booth 339
www.quickpen.com

Ramset
Booth 529
www.ramset.com

Ray Tools
Booth 609
www.raytools.com

Rough-in-Ready
Booth 739
www.roughinready.com

SolarWorld California
Booth 601
www.solarworld-usa.com

Southwire Company
Booth 447
www.southwire.com

Strip Technology
Booth 720
www.striptec.com

Topaz Lighting West
Booth 217
www.topaz-usa.com

TakeOff16
Booth 807
www.takeoff16.com

Universal Enterprises, Inc.
Booth 637
www.ueitest.com

UL
Booth 810
www.ul.com

W.A.C Lighting
Booth 326
www.waclighting.com

WAGO Corporation
Booth 516
www.wago.us

WireGuard
Booth 547
www.wireguardinc.com

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Save on Travel & Hotel Accommodations for electric West 2007

Discount Airfares Available

The **Electric West World Travel Desk** is offering discount airfares to Long Beach Municipal Airport and other convenient airports, including LAX, Orange County/John Wayne, Burbank, and Ontario International for **Electric West** attendees. Visit **www.electricshow.com** and click on the travel icon to make your reservations or call the Travel Technology Group at **800-359-9949**.

Be sure to mention that you are an Electric West Attendee when you call.

Hyatt Regency Long Beach

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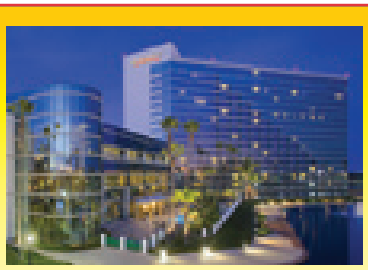

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$169 Single/Double

Reservations must be made by **January 17, 2007** to receive this special rate.
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Be sure to mention that you are an Electric West Attendee when you call.

Long Beach Convention Center

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For directions, visit **http://www.longbeachcc.com/maps.htm**

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Save 10% and More!
If you bring three or more team members from your company to **Electric West,** you'll qualify for special discount rates. This offer is valid only on registrations and payments that are submitted and received together.

Call our Group Discount Coordinator Claude Young at **203-358-4109** or **800-564-6212, ex 84109** for details and to register.

electric West 2007

February 21-23, 2007
Long Beach Convention Center
Long Beach, CA

Registration Form

To register additional attendees please photocopy this blank form

Professional Advancement Courses: February 20, 2007 • Conference & Exposition: February 21-23, 2007 • www.electricshow.com

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Phone:	(800)-927-5007 or		107 Waterhouse Rd.
	(508) 743-0105		Bourne, MA 02532

TAKE 10% OFF – Register a team of 3 or more from the same company at the same time.

1. General Information

Register by **Tuesday, January 23, 2007** to receive your Show Credentials in the mail. After **January 23,** you can bring this form with you to THE ELECTRIC WEST SHOW where your Show Credentials will be prepared on-site.

FIRST NAME _____ LAST NAME _____

TITLE _____

COMPANY _____

STREET ADDRESS _____

CITY _____

STATE _____ ZIP CODE _____ COUNTRY (OUTSIDE U.S.) _____

TELEPHONE _____ FAX _____

E-MAIL _____

By providing your e-mail address, you are granting Prism Business Media permission to contact you via e-mail.

☐ Please contact me about special needs

Source Code

2. Your Profile

1. Your Title or Job Function (Check ONE only)

A. ☐ Electrical Engineer
B. ☐ Chief Electrician
C. ☐ Electrician
D. ☐ Electrical Contractor
E. ☐ Estimator
F. ☐ Project Director
G. ☐ Facilities Manager
H. ☐ Electrical Inspector
I. ☐ Plant Engineer/ Other Plant Personnel
J. ☐ President, Owner, Partner
K. ☐ Company Officer
L. ☐ Design Engineer
M. ☐ Sales Engineer
N. ☐ Electrical Supervisor
O. ☐ Maintenance Engineer
P. ☐ Cable Installer
Q. ☐ Network Installer
R. ☐ Sales/Marketing
S. ☐ Manufacturer's Rep.
T. ☐ Purchasing
U. ☐ Other _____

2. Your Industry Group (Check ONE only)

A. ☐ Contracting
B. ☐ Electric Utility
C. ☐ Consulting/Architectural Engineering Firm
D. ☐ Healthcare Facility
E. ☐ Commercial Building
F. ☐ Transportation
G. ☐ Manufacturing
H. ☐ Institutional
I. ☐ Government
J. ☐ Data/Telecom
K. ☐ Repair & Service
L. ☐ Manufacturer's Agent
M. ☐ Wholesaling
N. ☐ Banking/Finance
O. ☐ Other _____

3. Type of Projects You Are Involved with (Check as many as apply)

A. ☐ Commercial B. ☐ Industrial C. ☐ Residential D. ☐ All of these E. ☐ None

4. Number of Employees in Your Organization (Check ONE only)

A. ☐ 1-49 B. ☐ 50-99 C. ☐ 100-499 D. ☐ 500-999 E. ☐ 1,000+

5. Purchasing Influence (Check ONE only)

A. ☐ Final Say B. ☐ Recommend C. ☐ Specify D. ☐ Other

6. How Much Electrical Equipment/Services Does Your Company Buy or Specify Annually?

A. ☐ Less than $249,999
B. ☐ $250,000-$499,999
C. ☐ $500,000-$999,999
D. ☐ $1,000,000-$1,999,999
E. ☐ $2,000,000-$4,999,999
F. ☐ $5,000,000 or more

3. Registration Options

	EARLY RATE by Jan. 23	AFTER Jan. 23
NEC Workshops Check off session(s) selection below		
◯ NEC1 (Tuesday, February 20 - 9:00 am - 5:00 pm)	$345	$395
◯ NEC2 (Wednesday, February 21 - 1:00 pm - 5:00 pm)	$325	$375
◯ NEC Combo (Tuesday, Feb. 20, 9 am & Wednesday, Feb. 21, 1 pm)	$625	$695
☐ **Premium Pass** Includes 3-Day Conference, and choice of one full-day (9am-5pm) **or** two half-day (9 am - 1 pm, 2 pm - 6 pm) Professional Advancement Course(s). **Select PAC and Sessions in Step 4.** NEC Workshop not included; separate registration required.	$825	$895
☐ **Professional Advancement Course(s) (Tues., Feb. 20)** **Choose PAC under Conference Selections.** You can take *either* one full-day PAC – 02, 03, 04, 05 **or** two half-day PACs – 01, 06.	$345	$395
☐ **3-Day Conference (Wed., Feb. 21; Thu., Feb. 22; Fri. Feb. 23)** Includes 3-day Conference. **Select Sessions in Step 4.** NEC Workshops and PACs not included; separate registration required.	$595	$695
☐ **Individual Day Pass** Includes all Conference Program sessions for selected day. **Select Sessions in Step 4.** NEC02 (Wednesday, Feb. 21) not included; separate registration required.		
◯ **Wednesday, February 21**	$345	$395
◯ **Thursday, February 22**	$345	$395
◯ **Friday, February 23**	$275	$325
☐ **Single Sessions–1 hour** **List Sessions under Conference Selections.**	$150 ea X_____	$175 ea X_____
☐ **Exhibit Hall Only Pass** Includes Keynote Address, Exhibit Hall and Ask the Experts	FREE with this form	$25
TOTAL AMOUNT DUE	$_____	$_____

On-Line Exhibit Hall registration is FREE throughout the show.

4. Conference Selections

Please mark the sessions you plan to attend. Select NEC Workshops in Step 3.

Tuesday, February 20 Professional Advancement Course (select one per time slot)

9:00 am - 5:00 pm	◯ PAC2	◯ PAC3	◯ PAC4	◯ PAC5
9:00 am - 1:00 pm	◯ PAC1			
2:00 pm - 6:00 pm	◯ PAC6			

Wednesday, February 21

8:30 am - 9:30 am	◯ 101	◯ 201	◯ 301	◯ 401	◯ 501	◯ 601
1:00 pm - 2:00 pm	◯ 102	◯ 202				
1:00 pm - 5:00 pm	◯ W1	◯ W2	◯ W3			
2:30 pm - 3:30 pm	◯ 103	◯ 203				
4:00 pm - 5:00 pm	◯ 104	◯ 204				

Thursday, February 22

8:30 am - 9:30 am	◯ 105	◯ 205	◯ 305	◯ 405	◯ 505	◯ 605
1:00 pm - 2:00 pm	◯ 106	◯ 206	◯ 306	◯ 406	◯ 506	
2:30 pm - 3:30 pm	◯ 107					
2:30 pm - 4:00 pm	◯ 207	◯ 307	◯ 407	◯ 507		
4:00 pm - 5:00 pm	◯ 108					

Friday, February 23

8:30 am - 12 noon	◯ W4	◯ W5	◯ W6	◯ W7	◯ W8

5. Method of Payment

Your registration will not be processed without full payment and signature, or if credit card is declined or invalid.

☐ Check Enclosed (made payable–in U.S. dollars, drawn on U.S. bank–to Prism Business Media.)

☐ Credit Card ☐ American Express ☐ VISA ☐ MasterCard

Card #_____ Exp. Date: _____/_____

Signature: _____

Cancellation Policy: All cancellations must be received by **Jan. 23, 2007**. Refunds will be issued less a $50 cancellation processing fee. After **Jan. 23, 2007**, no refunds will be made. Trade only; NO ONE UNDER 18 ADMITTED.

Register online at www.electricshow.com or on page 16

electric West 2007

February 21-23, 2007
Long Beach Convention Center • Long Beach, CA

Registration Form

To register additional attendees please photocopy this blank form

Professional Advancement Courses: February 20, 2007 • Conference & Exposition: February 21-23, 2007 • www.electricshow.com

Four Ways to Register:

On-Line:	www.electricshow.com	Mail:	Electric West
Fax:	(508) 759-4552		c/o CDS
Phone:	(800)-927-5007 or		107 Waterhouse Rd.
	(508) 743-0105		Bourne, MA 02532

TAKE 10% OFF – Register a team of 3 or more from the same company at the same time.

1. General Information

Register by **Tuesday, January 23, 2007** to receive your Show Credentials in the mail. After **January 23,** you can bring this form with you to THE ELECTRIC WEST SHOW where your Show Credentials will be prepared on-site.

FIRST NAME _____ LAST NAME _____

TITLE _____

COMPANY _____

STREET ADDRESS _____

CITY _____

STATE _____ ZIP CODE _____ COUNTRY (OUTSIDE U.S.) _____

TELEPHONE _____ FAX _____

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J. ☐ President, Owner, Partner
K. ☐ Company Officer
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M. ☐ Sales Engineer
N. ☐ Electrical Supervisor
O. ☐ Maintenance Engineer
P. ☐ Cable Installer
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4:00 pm - 5:00 pm	○ 104	○ 204				

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2:30 pm - 4:00 pm	○ 207	○ 307	○ 407	○ 507		
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Friday, February 23

8:30 am - 12 noon	○ W4	○ W5	○ W6	○ W7	○ W8

Electric West
Prism Business Media
P.O. Box 4156
River Bend Drive South
Stamford, CT 06907-0156

Register online at www.electricshow.com or on page 16